

TAXONOMY AND DESCRIPTION OF TWO PRIONINE  
CERAMBYCIDAE FROM SOUTHERN ARIZONA:  
A NEW SPECIES OF *STENODONTES* AND NEW STATUS  
FOR *NEOMALLODON ARIZONICUS* (COLEOPTERA)

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*Abstract.*—Recent studies of the prionine Cerambycidae of southern Arizona have revealed two new forms, a new species, *Stenodontes* (*Mallodon*) *madericus*, and the previously unrecognized male of *Stenodontes* (*Neomallodon*) *arizonicus* (Casey). Both species inhabit oak woodlands from central Arizona to northwestern Mexico and the larvae infest the heartwood of living evergreen oak trees. Discovery of these new forms necessitates revisions of Linsley's (1962) keys to the North American genera of the prionine tribe Macrotomini and the North American species of the genus *Stenodontes*. Clearly generically distinct from other Mexican and North American Macrotomini, *S. arizonicus* is redescribed and the subgenus *Neomallodon* Linsley is elevated to generic status.

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Recent studies of the southern Arizona prionine Cerambycidae presently assigned to the genus *Stenodontes* (Linsley, 1962) have revealed two previously unrecognized forms, a new species described below as *Stenodontes* (*Mallodon*) *madericus*, and the heretofore unknown male of *Stenodontes* (*Neomallodon*) *arizonicus* (Casey).

Although infrequently collected, *S. madericus* ranges from north central Arizona to northwestern Mexico and can be found among other species of Macrotomini in almost any large collection of southern Arizona Cerambycidae. It is indeed remarkable that this distinctive prionine has remained undescribed for so long, but the small number of specimens collected prior to the last few years and the similarity of habitus of the females and minor males of the western species of *Stenodontes* are undoubtedly responsible. As a case in point, the author identified his first specimens of *S. madericus* as females of *S. lobigenis* (Bates), and it was not until the holotype male was collected that it was clear a distinct species was at hand. Realization that the species was undescribed was further delayed by the fact that the strong, basally retracted mandibles suggested that the specimen was a male of *S. arizonicus*.

The latter species, originally described over sixty years ago (Casey, 1912), remains rare in collections despite the fact that collecting has persisted within its range for almost a century. Less than ten specimens of *S. arizonicus* were known to Linsley (1962) when he revised *Stenodontes*. The lack of material, the short mandibles, and the rather similar appearance

of the sexes led Linsley to include only the female in his revision, although Linsley et al. (1961) refer to a male taken in Cave Creek Canyon in the Chiricahua Mountains of southeastern Arizona. The latter specimen, however, was known only to Knull (Linsley, personal communication).

Intensive collecting in southern Arizona by several individuals in recent years has enabled the author to examine a substantial series of *S. arizonicus* and, thereby, to distinguish the male and female and to significantly extend the known range of the species. A revised description of the species is presented below, and on the basis of the rather subdued sexual dimorphism and other obvious structural differences from all closely related taxa, it is proposed that the monotypic subgenus *Neomallodon* Linsley be elevated to generic status.

Description of these new forms necessitates revisions of Linsley's (1962) keys to the North American genera of the prionine tribe Macrotomini and the North American species of the genus *Stenodontes*. To ensure proper separation of the taxa and to remove the confusion of species almost invariably encountered in collections, the keys and descriptions are rather detailed. Because all but one species (*S. chevrolati* Gahan) of the North American Macrotomini occur in Mexico<sup>1</sup>, and since Linsley (1934) originally described *Neomallodon arizonicus* (Casey) as *Aplagiognathus remotus* Linsley, the Mexican genus *Aplagiognathus* is included in the key to the Macrotomini.

#### Key to the North American Genera of Macrotomini

1. Antenna with 3rd segment shorter than scape; scutellum concave 2
  - Antenna with 3rd segment longer than scape; scutellum very convex *Strongylaspis*
- 2(1). Antennal tubercle obtuse; mandible nearly vertical, almost glabrous, neither carinate nor tuberculate above, prominently unidentate internally at about middle, not excavated internally; lateral margin of pronotum crenulate or denticulate, never spinose *Archodontes*
  - Antennal tubercle obtuse or acute; mandible only moderately deflexed or nearly horizontal, basal  $\frac{1}{2}$  in profile tumid or broadly triangular above, or more or less carinate above and excavated internally, usually bi- or tridentate internally; lateral margin of pronotum denticulate to prominently spinose 3
- 3(2). Sexual dimorphism evident but rather subdued; mandible shorter than head, either robust or extremely short, dorsal and/or outer margin strongly retracted at base (except occasional females), always possessing numerous long setae on external margin; submentum unsculptured, broadly, shallowly, transversely impressed,

- usually finely to moderately, transversely rugose, occasionally polished and shallowly punctate; metepisternum broad 4
- Sexual dimorphism pronounced; mandible usually neither robust nor strongly retracted at base, in males as long or longer than head (except some minor males); if mandible strongly retracted at base, metepisternum narrow; submentum not as above, coarsely granulate-punctate and/or coarsely, usually longitudinally, rugose, posterior and anterior regions distinctly contrasting, anterior region usually recessed, occasionally only more finely punctate; metepisternum broad or narrow *Stenodontes*
- 4(3). Mandible in profile evenly arcuate dorsally, rather carinate above, distinctly excavated internally, a stout, broadly emarginate tooth before apex; antennal tubercle acute or scarcely obtuse; pronotum with lateral region obsoletely punctate, lateral margin denticulate, distinctly reflexed; metepisternum broad, inner margin straight or feebly convex *Neomallodon*
- Mandible in profile with basal  $\frac{1}{2}$  tumid or subtriangular dorsally, not or scarcely excavated internally, a strong, broadly rounded tooth before apex; antennal tubercle obtuse; pronotum with lateral region densely granulate-punctate, lateral margin spinose, not reflexed; metepisternum very broad, inner margin distinctly convex *Aplagiognathus*

Genus *Neomallodon* Linsley, NEW STATUS

*Stenodontes* (*Neomallodon*) Linsley, 1957:2; Linsley, 1962:18.

Sexual dimorphism not pronounced. Body large, robust, rather depressed. Head well developed; antenna robust, attaining basal  $\frac{1}{3}$  of elytron, scape longer than 3rd segment, 3rd segment robust, subequal to 4th; antennal tubercle acute or scarcely obtuse; mandible deflexed, robust, distinctly shorter than head, in profile rather evenly arcuate above, excavated internally, a stout, broadly emarginate tooth at apical  $\frac{1}{3}$ , outer margin strongly retracted at base; submentum shallowly, transversely impressed. Pronotum very transverse, disk polished, almost impunctate, lateral margins reflexed, parallel in male, converging anteriorly in female; metepisternum broad, inner margin straight or feebly convex; elytral apices rounded, sutural angle rounded or subangulate.

*Type-species*.—*Paramallus arizonicus* Casey (by original designation).

*Range*.—Southeastern Arizona, and presumably northwestern Mexico.

*Neomallodon arizonicus* (Casey), NEW STATUS

Figs. 1, 2

*Paramallus arizonicus* Casey, 1912:228.

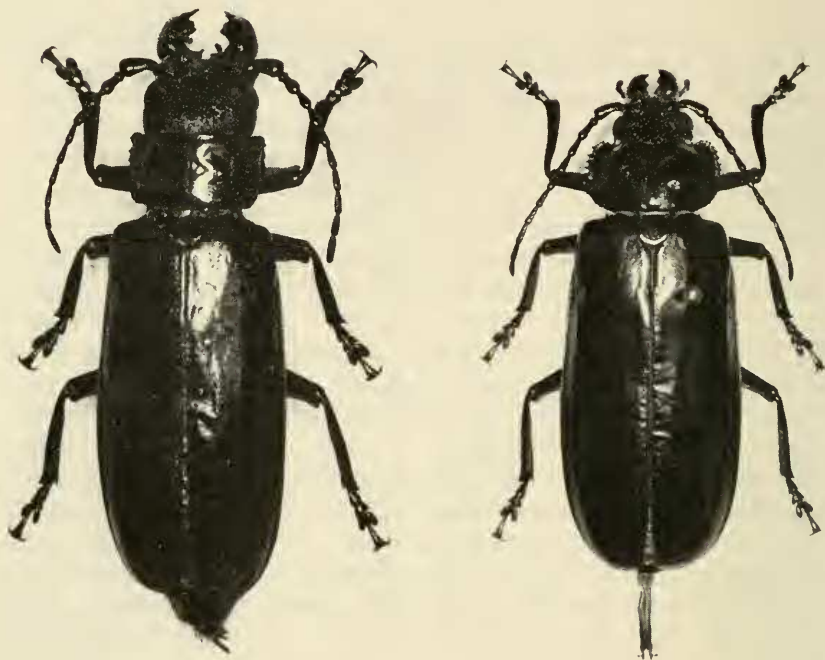


Fig. 1. *Neomallodon arizonicus* (Casey). Left, male; right, female. To afford a full view of the mandibles, the heads are only slightly deflexed.

*Aplagiognathus remotus* Linsley, 1934:161.

*Stenodontes (Neomallodon) arizonicus* (Casey). Linsley, 1957:3 (synonymy of *P. arizonicus* and *A. remotus*); Linsley, 1962:19; Linsley et al., 1961:3 (record).

*Male*.—Form elongate-robust, sides subparallel. Integument shining, glabrous, medium to dark red brown. Head deflexed, bisected by a longitudinal groove, fine basally, becoming broader and deeper on frons, abruptly bifurcating to form clypeal suture; dorsum coarsely, moderately to densely punctate, punctures usually less dense in broad median region extending from occiput to frons; antennal tubercle acute or scarcely obtuse; antenna attaining basal  $\frac{1}{3}$  of elytron, rather sparsely punctate, flagellar segments carinulate, basal segments distinctly broader than apical segments, 2nd segment transverse, 3rd  $\frac{2}{3}$  as long as scape, subequal to

4th and 5th, thence to 10th scarcely increasing in length, 11th distinctly longer than 10th, shorter than scape; mandible deflexed about  $45^\circ$ , tumid, very robust, distinctly shorter than head, above broadly carinate and rather evenly arcuate in profile, excavated internally with a stout, broadly emarginate tooth at apical  $\frac{1}{3}$  and a strong tooth at base, outer margin arcuate, strongly retracted at base, shallowly, sparsely punctate, a recurved seta arising from each puncture, inner margin more densely punctate, pubescence erect; submentum shallowly, transversely impressed, rather finely, transversely rugose; genal process broadly emarginate, subangulate below, rounded above. Pronotum shining, twice as broad as long, narrower than base of elytra, anterior margin broadly sinuate or feebly trisinate, basal margin bisinate, lateral margins subparallel, denticulate, distinctly reflexed; disk polished, impunctate or very finely, sparsely punctate, lateral regions vaguely rugose, punctures, large, shallow, obsolete except near disk; prosternum feebly impressed, very finely, sparsely punctate in front of coxae, finely to moderately rugose anteriorly, pubescence sparse, erect; metepisternum rather broad, finely punctate, inner margin straight or feebly convex; mesosternum, metasternum, and metepisternum covered with long, dense, erect, golden pubescence; scutellum broadly rounded, glabrous, nearly impunctate. Elytron 4.4–4.6 times as long as basal width, widest at or behind middle; surface shining, finely, sparsely punctate basally, more densely and vaguely so apically; apices separately, broadly rounded, suture rounded or subangulate. Legs short; femora shining, impunctate, with few scattered setae; tibiae sparsely pubescent, 2 thin lines of dense, golden pile on lower margins, punctures sparse, large, vague. Abdomen shining, glabrous beneath, thinly pubescent laterally, densely pubescent on lateral margins, 5th sternum densely fringed with long, golden setae, broadly subtruncate, feebly emarginate, usually very transverse and shorter than 4th. Length, apex of elytron to base of mandible, 40–47 mm.

*Female*.—Head distinctly smaller than in male. Mandible shorter and less robust than in male, moderately retracted at base, internal teeth less pronounced, preapical tooth truncate or feebly emarginate. Lateral margins of pronotum converging anteriorly. Elytron 4.5–4.7 times as long as basal width. Fifth abdominal sternum less transverse than in male, apex rounded or subtruncate, often feebly emarginate at middle. Length, 37–47 mm.

*Type-locality*.—Of *arizonicus*, Arizona; of *remotus*, Mt. Washington, altitude 6,000 feet, Santa Cruz Co., near Nogales, Arizona.

*Known range*.—Oak woodlands of southeastern Arizona (Fig. 2).

*Flight period*.—Late June to late July.

*Host*.—*Quercus*.

*Habits*.—The habits of *Neomallodon arizonicus* remain poorly known, and

specimens, particularly males, are rare in collections. Adults are occasionally attracted to light during the early hours of darkness, but their flight is also crepuscular, for I have taken a male from the porch of the Santa Rita Lodge in Madera Canyon, Arizona during the evening twilight. Although observations are not sufficient to permit a detailed comparison, the larval habits and host preferences of *N. arizonicus* are apparently rather similar to those of its sympatric relative *Stenodontes madericus*, as larvae of each species have been found working in the heartwood of a living evergreen oak tree.

The only host record for *Neomallodon arizonicus* has been provided by C. E. Langston, who reared several adults (only one of which I have seen) from oak (either *Quercus emoryi* Torrey, *Q. oblongifolia* Torrey or *Q. arizonicus* Sargent) collected at Texas Pass in the Dragoon Mountains, Coconino County, Arizona. The larvae were found mining the heartwood of a large, living limb which had been seriously weakened by their extensive work. Living wood, however, is apparently not essential to larval development, since adults emerged from the limb over a period of two or three years. Moreover, in the trunks and larger limbs of dead oak trees in southeastern Arizona one occasionally finds extremely large emergence holes which are probably those of *Neomallodon arizonicus*. The holes are much larger than those characteristic of *Stenodontes madericus*, and are not readily attributed to *Prionus californicus* Motschulsky or *P. heroicus* Semenov, the only other sufficiently large cerambycids which are known or presumed to infest oak trunks in southeastern Arizona. Like many other members of the genus *Prionus*, *P. californicus* feeds primarily on the roots of living trees and pupates in the soil, and only occasionally feeds and pupates in dead logs or stumps (Linsley, 1962). The larval habits of *P. heroicus* have not been determined, but they are probably similar to those of *P. californicus*, since females have been found in leaf litter at the bases of both living oak trees (D. Skiles) and oak stumps (Hovore and Giesbert, 1976).

*Diagnosis.*—This species has clear affinities with both *Archodontes* and *Aplagiognathus*. Casey (1912) erected the genus *Paramallus* to include both his new species *P. arizonicus* and what is now known (Linsley, 1962) as *Archodontes melanopus* (L.). The distinctly deflexed head, rather stout, externally arcuate mandibles, plane, unsculptured submentum, broad met-episternum, and general facies of the pronotum indeed give the females of *Neomallodon* a very archodontine appearance, and I have often found the two species confused in collections. However, as Linsley (1957, 1962) recognized, *Neomallodon* is readily generically separated from *Archodontes* by the rather flattened body, acute antennal tubercles and basally retracted, internally excavated, bidentate mandibles.

Linsley (1934) originally placed his species *remotus* in *Aplagiognathus*,

but upon examining the type of *Paramallus arizonicus* Casey, concluded that the two species were identical and placed them in synonymy in a new stenodontine subgenus, *Neomallodon* (Linsley, 1957). Unfortunately, Linsley was unable to examine the types side by side (Linsley, personal communication), and the rather subdued sexual dimorphism—the sexual dimorphism apparent in Fig. 1 is extreme for the species, the female being minor, the male very major—coupled with the fact that the Casey type is a large, robust, but obviously female, specimen, led him to conclude that the type and paratype of *Aplagiognathus remotus* were also female. The acute antennal tubercles and internally excavated and dorsally carinate mandibles then seemed to place the species in *Stenodontes*.

I have examined the genitalia of both the Casey type and the Linsley type and paratype. The former is female, and the latter, as originally stated by Linsley (1934), are male. The stout, basally retracted mandibles, unsculptured submentum and minimal sexual dimorphism indicate that *Neomallodon* is quite distinct from *Stenodontes* and more closely related to *Aplagiognathus*. From the latter, however, *Neomallodon* is distinguished by the dorsally arcuate, internally excavated mandibles, the acute antennal tubercles, and the distinctive structure of the pronotum.

*Material examined.*—Arizona. Holotype ♀ of *Paramallus arizonicus* Casey (USNM type 36405. No collection data with specimen. Casey (1912) gives the locality and collector as "Arizona-Levette."); holotype ♂ (CAS type 3822) and paratype ♂ (CAS) of *Aplagiognathus remotus* Linsley, Mt. Washington, near Nogales, Santa Cruz Co., alt. 6,000 ft., VII-20-1919 (J. A. Kusche). Santa Cruz Co.: Sycamore Canyon, 12 mi SE Ruby, 1♀, VII-22-71 (D. G. Marqua); Nogales, 1♀, VII-10-57 (Stange and Harding); Madera Canyon, 1♂ (flying at evening twilight), VI-28-VII-4-73, 1♀ (at light), VII-15-75 (D. D. Skiles); 1♀, VII-3-66, 1♀, VII-23-24-71 (F. T. Hovore, at light); 1♀, VII-10-70, 1♀, VII-12-73 (E. F. Giesbert, at light); 1♂, VII-11-57, 2♂♂, VII-12-57 (Stange and Harding); 1♀, VII-19-25-57 (R. L. Westcott); 1♀, VII-22-65, 1♀, VII-8-71, 1♀, VII-19-71 (D. G. Marqua); 1♀, VII-16-72 (A. E. Lewis). Pima Co.: Madera Canyon, 1♀, VII-11-70 (E. F. Giesbert, drowned in creek); Molino Basin, NE Tucson, 1♀, VII-10-73 (D. G. Marqua, at light). Gila Co.: Sierra Ancha Mts., 1♂ (D. K. Duncan, labeled *Archodontes cilipes* Say). Cochise Co.: Southwestern Research Station, 5 mi SW Portal, 1♀, VII-20-71 (E. F. Giesbert, at light); 3.5 mi SW Portal, 1♀, VII-11-66 (R. G. Beard); Miller Canyon, Huachuca Mts., 1♀, VII-14-69 (A. E. Lewis); Texas Pass, 1♂, VI-1-73 (C. E. Langston, reared ex *Quercus*); Cochise Stronghold, Dragoon Mts., 1♀, VII-29-57 (C. W. O'Brien); 1♀, VII-18-77 (D. G. Marqua, at light). Santa Rita Mts., 1♀, VII-11-50 (J. G. Rozen). Additional Arizona localities known to me are: Cochise Co.: Huachuca Mts. and Miller Canyon, Huachuca Mts. (Linsley, 1962:19).

Key to North American Species and Subgenera of *Stenodontes*

1. Antennae not or scarcely surpassing middle of elytra in male, not attaining middle in female; mandible of male at most but little longer than head, distinctly pilose internally 2
- Antennae attaining at least apical  $\frac{1}{3}$  of elytra in male, middle in female; mandible of male narrow, usually very much longer than head, almost glabrous (*Stenodontes* s. str.) *chevrolati* Gahan
- 2(1). Metepisternum broad, inner margin straight or feebly convex; mandible without strong preapical tooth on inner margin (*Orthomallodon*) *dasytomus* (Say)
- Metepisternum narrow, inner margin slightly concave in female, strongly concave in male; mandible with a strong preapical tooth on inner margin (*Mallodon*) 3
- 3(2). Integument medium to dark red brown; mandible tumid and retracted at base, particularly in profile (Fig. 4), outer margin rather strongly, evenly arcuate from base to tip, never but slightly longer than head; lateral margin of pronotum finely spinose, the subbasal spine most prominent, often 2× or more as long as remaining spines; anterior  $\frac{1}{2}$  of submentum deeply recessed, recession not attaining lateral sutures; genae not produced over submentum, but lateral and usually basal portions of submentum distinctly produced over recession in males, scarcely so in females *madericus*, new species
- Integument very dark brown or piceous; mandible not tumid or retracted at base, outer margin straight or slightly arcuate over basal  $\frac{2}{3}$ , then rather abruptly inflexed to tip, in males (except some minor males) distinctly longer than head; lateral margin of pronotum generally finely denticulate, subbasal dentule occasionally prominent, not spinose; anterior  $\frac{1}{2}$  or  $\frac{1}{3}$  of submentum deeply recessed over entire width; genae distinctly produced over recession in males, less so in females *lobigenis* (Bates)

*Stenodontes madericus* Skiles, new species

Figs. 2-6

*Stenodontes arizonicus* Hovore and Giesbert, (not Casey), 1976:350 (habits).

*Male*.—Form elongate, flattened, sides sub-parallel. Integument shining, glabrous, medium to dark red brown. Head very coarsely, rugosely punctate around eyes, punctures becoming sparse and separate in broad, polished median region extending from occiput to frons and continuing laterally onto antennal tubercle; dorsum with a longitudinal impression, very fine basally, becoming broad and deep on frons, abruptly bifurcating to form



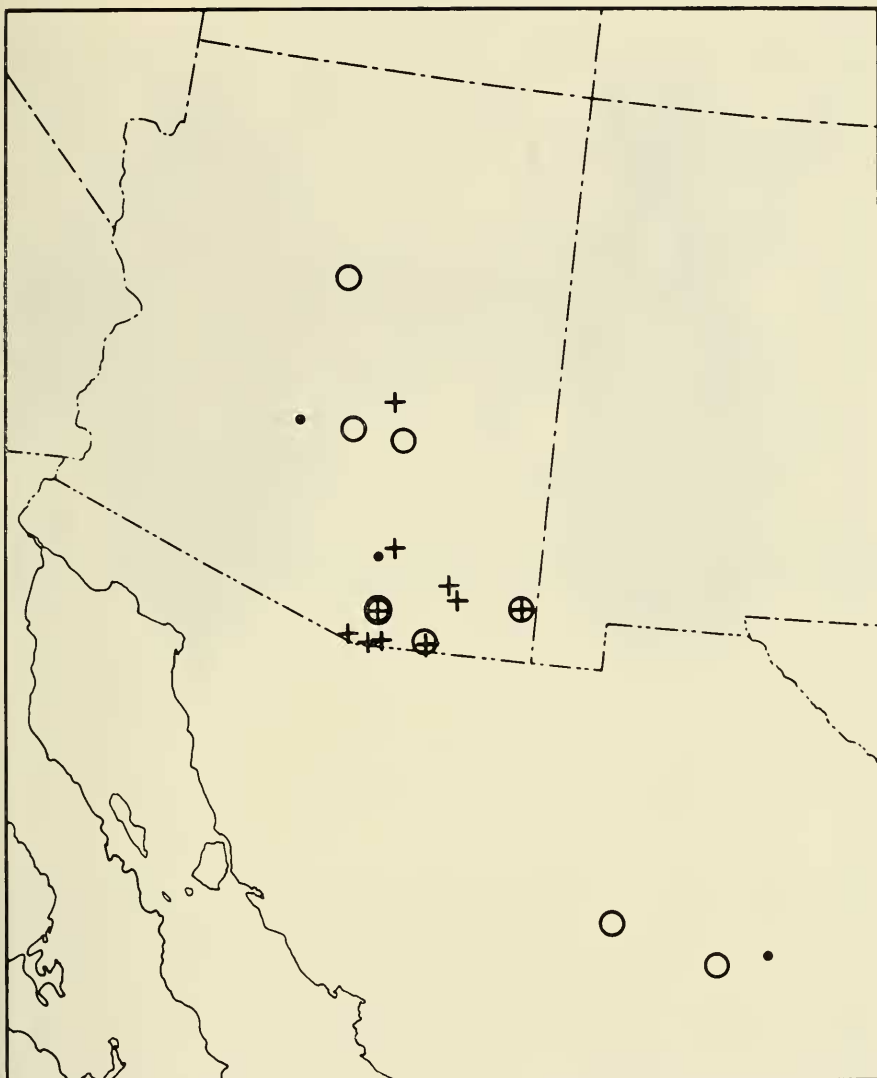


Fig. 2. Known geographical ranges of: *Neomalldon arizonicus* (Casey), +; *Stenodontes madericus* Skiles, ○. Heavy circle indicates the type locality of *S. madericus*. Small solid dots show the locations of the cities of Phoenix, Tucson, Chihuahua.

clypeal suture; occiput finely granulate-punctate, a few punctures extending onto vertex; antennal tubercle acute; antenna attaining middle of elytron, scape coarsely, closely punctate externally, pedicel and basal flagellar segments finely, sparsely punctate, segments beginning with

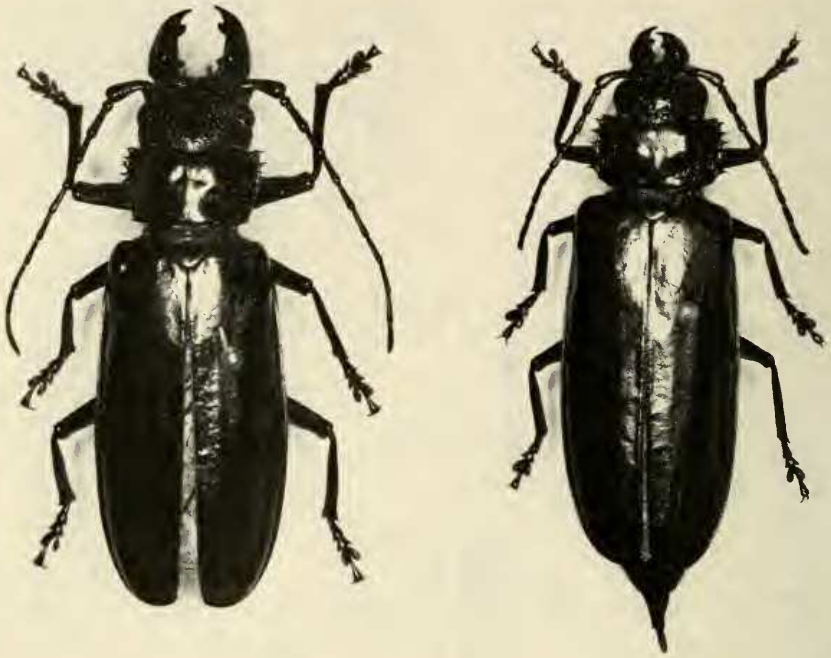


Fig. 3. *Stenodontes madericus* Skiles. Left, holotype male; right, allotype female.

3rd or 4th carinulate externally, carinulae becoming more numerous distally, apical segments completely carinulate, 3rd segment shorter than scape, longer than 4th, 5th through 10th subequal or gradually increasing in length, 11th distinctly longer than 10th, subequal to scape, feebly appendiculate; mandible longer than head, tumid, strongly retracted at base, basal  $\frac{1}{2}$  bulbous in profile, subangulate above, about  $3\times$  as thick as base of apical  $\frac{1}{2}$ , abruptly declivous at middle of mandible; outer margin coarsely, densely punctate, a long recurved seta arising from each puncture, inner margin more densely punctate, setae very long, erect, a strong blunt tooth before apex, a strong triangulate tooth at or before middle; submentum coarsely, rugosely punctate, anterior  $\frac{1}{2}$  deeply recessed, recession not attaining lateral suture, sides and base distinctly, usually dramatically, produced over recession, genal-submental suture carinate, not produced. Pronotum  $2\times$  as wide as long, anterior margin broadly trisinate, basal margin broadly bisinuate, often with a 3rd vague sinus at middle, lateral margin finely spinose, subbasal spine most prominent,

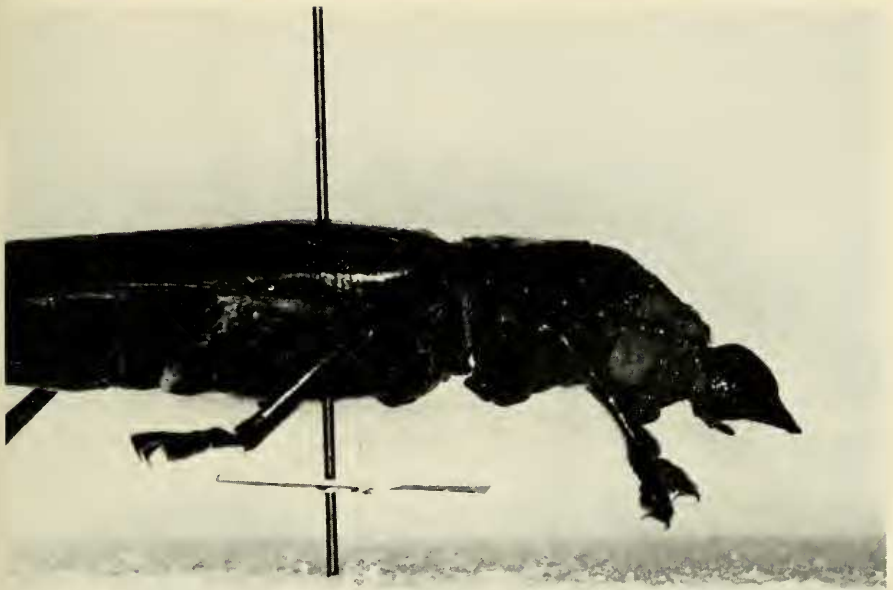


Fig. 4. Profile of male *S. madericus*, showing bulbous, basically retracted mandible.

usually  $2\times$  as long as others; disk polished, very finely, sparsely punctate, punctures becoming much coarser and denser on sides which are very broadly, longitudinally rugose, base of disk with 2 transverse, oval impressions clearly visible to the naked eye; prosternum densely, usually finely, punctate and thinly pubescent, sparsely punctate between coxae; metepisternum very narrow, finely, densely punctate and pubescent, inner margin strongly concave; mesosternum and metasternum covered with dense golden pile, except shining, rather sparsely pubescent midline region which is narrow basally and broadly flaring apically; scutellum glabrous, very finely, very sparsely punctate. Elytra at least  $2\times$  as long as basal width, widest at about middle, base wider than pronotum; surface smooth, somewhat dull, often vaguely rugulose basally near suture, often finely, sparsely punctate apically; apices broadly, separately rounded, suture angulate or minutely dentate. Legs short; femora somewhat slender, shining, very sparsely, finely punctate, glabrous except for sparse, recurved setae near lower posterior margins; tibiae less shining, more coarsely, densely punctate than femora, glabrous except for scattered, erect, golden setae and 2 thin lines of dense, golden pubescence covering at least apical halves of lower margins. Abdomen with sternites polished, glabrous and impunctate at middle, sides sparsely punctate, each puncture with a reddish-

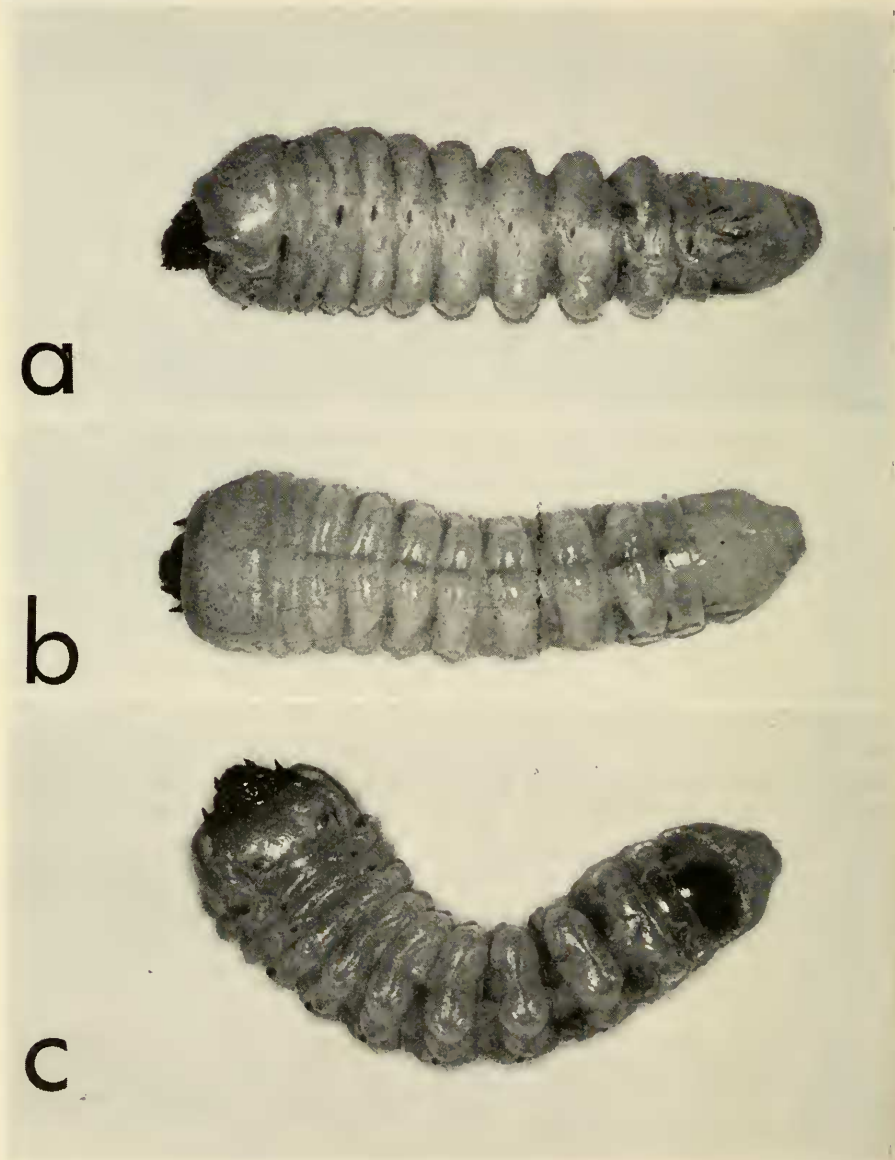


Fig. 5. Presumed mid-instar larva of *S. madericus* found with an adult male in trunk of living *Quercus hypoleucooides*. a, lateral view. b, dorsal view. c, ventral view.

golden recumbent seta, setae becoming denser on lateral and apical margins; 5th sternum transverse, shorter than, or subequal to, 4th, apex broadly emarginate, densely fringed with long, reddish-golden setae. Length, apex of clytron to base of mandible, 26–40 mm.



Fig. 6. Fragment of trunk of *Q. hypoleuroides* containing three emergence holes of *S. madericus*.

*Female*.—Mandible shorter than head, less strongly retracted at base than in male; preapical tooth less prominent; antenna attaining basal  $\frac{1}{3}$  of elytron, 3rd segment  $\frac{2}{3}$  as long as scape, 4th through 6th scarcely decreasing, 7th through 10th scarcely increasing in length, 11th subequal to scape, not appendiculate; sides of submentum not or slightly produced over apical recession. Pronotal spines more pronounced, subbasal spine 2–4 $\times$  as long as remaining spines; prosternum usually more shining and sparsely punctate than in male. Metepisternum less narrow than in male, inner margin only slightly concave. Fifth abdominal sternum longer than 4th, apex truncate, notched, or broadly emarginate. Length, 30–43 mm.

*Type-locality*.—Roundup Picnic Ground, elevation 5,400 feet, Madera Canyon, Santa Cruz Co., Arizona.

*Known range*.—Oak woodland of north central Arizona to northwestern Mexico (Fig. 2).

*Flight period*.—Late June to early August.

*Habits*.—*Stenodontes madericus* is much less common and widespread than its sympatric congeners *S. logigenis* and *S. dasytomus*, but adults are attracted to light in oak woodland throughout much of southeastern Arizona. The only confirmed host for *S. madericus* is living silver leaf oak (*Quercus hypoleuroides* A. Camus). The latter species is characteristically rather small, the diameter of the trunk seldom exceeding 10 or 12 inches. An adult male (abdomen still distended) and three presumed mid-instar larvae of *S. madericus* were found at the type-locality on 21 June 1977 in the six to eight inch diameter trunk of a living *Q. hypoleuroides* (E. F. Giesbert), near where several adults had been taken at night in July of a previous year, walking on living trunks of the same species (J. S. Cope and D. G. Marqua). (Here it should be noted that the remarks of Hovore

and Giesbert (1976), concerning the oak infesting habits of *S. arizonicus*, in fact refer to *S. madericus*.)

The larvae were mining the heartwood and had excavated several intermingling galleries which were parallel to the grain and almost entirely filled with a rather coarse, tightly packed mixture of granular frass and feculae. The extent of the galleries and the simultaneous presence of three larvae and an adult in the same gallery system indicate that the larvae require at least two years to develop and often reinfest the same tree. The larvae construct oval emergence holes, often through scars devoid of bark (Fig. 6), and leave both the holes and the outer two or three inches of the exit galleries open, thus creating the impression the adults have already emerged.

Emergence holes which appear to be those of *S. madericus* are not uncommon in Madera Canyon and other oak woodland regions of southeastern Arizona. Infested trees seldom seem to suffer from the initial attack. However, trees which have been repeatedly infested sometimes appear to be in decline, and on occasion I have seen a large, living oak limb seriously weakened or even broken off as a result of extensive larval work.

Given that most oak infesting cerambycids, including prionines, are not confined to a single host species, it is possible that *S. madericus* attacks several species of evergreen oaks, and perhaps even deciduous oaks. *Quercus hypoleucoides* is certainly not the only host species, since *S. madericus* has been taken in both Oak Creek Canyon and the Superstition Mountains of Arizona where *Q. hypoleucoides* does not occur (Kearney and Peebles, 1960). There are also indications that *S. madericus* does not attack only living trees. Three specimens have been taken from beneath slabs of bark on standing dead oaks—a pair *in copulo* (end-to-end and facing apart) in the Huachuca Mountains of Arizona (F. T. Hovore) and a male in Cave Creek Canyon near Portal, Arizona (A. E. Lewis). In addition, one occasionally finds in southeastern Arizona a standing dead oak thoroughly riddled with emergence holes which appear to be those of *S. madericus*.

*Diagnosis.*—This species, like *Archodontes melanopus* and the other North American species of *Stenodontes* (but apparently unlike *Neomallodon arizonicus*) is quite variable in size and exhibits significant mandibular allometry, characteristics which undoubtedly have been largely responsible for the confusion of *S. madericus* with other species of Macrotomini, particularly *S. lobigenis*. Despite the fact that *S. madericus* has until now remained unrecognized, most specimens are readily separated from similar forms by the characters given in the preceding keys. The tumid, basally retracted mandibles (Fig. 4) and deeply excavated submentum immediately separate males and major females from other species of *Stenodontes*, and the sculptured submentum and narrow metepisternum readily distinguish all specimens from *Neomallodon* and *Archodontes*. However,

minor females of *S. madericus* and *S. lobigenis* are often difficult to separate, primarily because the submental sculpture and mandibular profiles of minor females are not distinctive. Minor females of *S. lobigenis* from the United States, mainland Mexico and northern Baja California are generally separable from specimens of *S. madericus* by their dark brown color and short, denticulate pronotal spines, but specimens of *S. lobigenis* from the cape region of Baja California and from various islands in the Gulf of California are often red brown and have spinose pronotal margins. The latter, however, can be distinguished from *S. madericus* by the inner margin of the mandible, which in *S. madericus* is bidentate and in *S. lobigenis* is vaguely crenate and lacking a distinct subbasal tooth.

*Stenodontus madericus* clearly belongs to the subgenus *Mallodon* Audinet-Serville, and the description of *Mallodon* given by Linsley (1962) must be modified to accommodate tumid, basally, retracted mandibles. Within the subgenus, *S. madericus* is a member of what Lameere (1902) referred to as the Mexican group of *Nothopleurus* Lacordaire, i.e., *S. lobigenis* and *S. subsulcatus* (Dalman). The essential morphological differences between these species are expressed almost exclusively in the structures of the mandibles and submenta. *Stenodontes subsulcatus* is quite possibly known from only three specimens, all types, none of which I have seen. However, the original description of *Mallodon gnatho* White (1853) and the detailed description of the type of *Nothopleurus ebeninus* Lacordaire by Lameere (1902), who synonymized both with *Prionus subsulcatus* Dalman and placed them in *Stenodontes*, are sufficient to draw the following conclusions. *Stenodontes madericus* is probably most closely related to *S. subsulcatus*, but differs from the latter in the more dramatically recessed submentum, less pronounced mandibular structure and smaller size. The latter, to be sure, is a poor species character but nevertheless, the White type, a male, is 42 mm long and the Lacordaire type, also a male, is 45 mm long. Both are thus larger than the largest male (40 mm) of the rather substantial type-series of *S. madericus*. The mandibles of *S. subsulcatus* are apparently similar to those of *S. madericus*, but differ in having two contiguous preapical teeth on the inner margin and the basal swelling distinctly triangular in profile and terminating apically in a tooth-like process. *Stenodontes subsulcatus* is known only from Honduras and the Yucatan and is therefore considerably separated geographically from *S. madericus*. On the other hand, *S. lobigenis* and *S. madericus* are sympatric throughout most of the range of the latter, and their specific differentiation presumably arose via exploitation of distinct, but contiguous, biomes—evergreen oak woodland and desert scrub.

*Remarks.*—This species is named to commemorate the type-locality, Madera Canyon, Arizona, long noted for its rich and unusual avifauna and entomofauna by professional scientist and amateur naturalist alike.

*Material examined*.—Holotype ♂ (U.S. National Museum of Natural History, Washington, D. C., USNM type #75481) from Roundup Picnic Ground, elevation 5,400 feet, VII-14-75, and allotype from Santa Rita Lodge, elevation 4,960 feet, VII-15-75, Madera Canyon, Santa Cruz County, Arizona (D. D. Skiles, at light). Fifty-seven paratypes. Arizona. Coconino County: Indian Gardens, 6 mi N Sedona, 1♀ VIII-7-67 (S. M. Anderson, labelled *Archodontes melanopus serrulatus* ♂). Santa Cruz County, Madera Canyon: 4♀, VI-28-VII-4-73, 2♂, 1♀ VII-15-75 (D. D. Skiles, at light); 1♂, 4♀, VII-18-65, 3♀, VII-19-65, 1♂, 1♀, VII-20-65, 1♂, 2♀, VII-5-75, 4♂, 1♀, VII-20-75 (J. S. Cope, at light and walking on living oak trunks); 1♂, 1♀, VII-11-57 (Stange and Harding); 2♀, VI-25-76 (at light), 1♂ (in living oak trunk), VI-21-77 (E. F. Giesbert); 1♀, VII-25-73, 1♂, VII-26-76 (F. T. Hovore, at light); 2♂, VII-10-15-75 (A. E. Lewis, at light); 1♀, VII-29-71 (C. E. Langston, at light); 1♀, VII-11-63, 1♀, VI-28-75 (G. C. Walters, Jr., at light); 1♂, VII-2-65 (D. N. Harrington, 4,880 feet); 1♀, VII-23-65, 1♂, 3♀, VII-8-71, 1♀, VIII-4-72, 1♂, VII-14-75, 1♀, VII-18-75 (D. G. Marqua, at light and walking on living oak trunks). Gila County: Globe, 1♂, July (D. K. Duncan). Cochise County: Carr Canyon Road, elevation 6,000 feet, Huachuca Mts., 1♂, 1♀, (*in copulo* under bark of oak), VII-24-76 (F. T. Hovore); Southwestern Research Station, 5 mi SW Portal, 1♂ (dead about one year), 1♂, 1♀, VII-3-76 (D. D. Skiles, at light); 3 mi SW Portal, 1♂, VII-25-66 (A. E. Lewis, under bark of dead oak). No county given (very old label): Superstition Mts., 1♀, July (D. K. Duncan). Mexico. Chihuahua: 8 mi W Matachic, elevation 7,200 feet, 1♂, VII-8-47 (D. Rockefeller Exp., Schramel, AMNH); 15 mi E Cuauhtemoc, elevation 6,600 feet, 1♀, VII-11-64 (J. A. Chemsak and J. Powell, at light).

Also seen but not included as paratypical owing to the questionable validity of the locality (A. E. Lewis, personal communication), 1♀, labeled Gila Bend, Ariz., 5 Aug 1954, (A. E. Lewis).

Paratypes reside in the collections of the California Academy of Sciences, the American Museum of Natural History, the Essig Museum of Entomology, University of California, Berkeley, and the collections of the author, J. S. Cope, E. F. Giesbert, F. T. Hovore, C. E. Langston, A. E. Lewis, D. G. Marqua, and G. C. Walters, Jr.

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#### Footnote

<sup>1</sup>While *Neomalldon arizonicus* has apparently not been collected in Mexico (see Fig. 2), it is unlikely that this is a result of the species' observance of a political boundary.